



Survey of Year 2000-related Electronic Data Exchange Issues

The Ranking Minority Member of the Subcommittee on Technology, Senate Committee on Science, has asked GAO to perform a governmentwide review of efforts to address the Year 2000 problem associated with electronic data exchanges.

Specifically, we have been asked to identify (1) key actions taken by federal agencies to address electronic data exchanges among federal, state, and local governments; and (2) federal efforts to minimize the potential adverse impact of non-compliant Year 2000 data from foreign sources on our nation's computer systems.

Your participation in this survey is critical, and we appreciate your time in assisting us in this inquiry. The questions in this survey can be answered by filling in the blanks. We are providing a computer disk containing the questionnaire in both WordPerfect 6.0 and Microsoft Word 7.0 formats, for your use in replying. It is important that you answer every question.

We know that in some cases a Department's Year 2000 program office will have the Department-level data exchange information readily available. In other cases the data exchange information may be available only at the Department's component-level organizations, and must therefore be collected and aggregated. In either case, please report only aggregate data for your Department or agency.

We realize that there may be some instances where this information may be difficult to obtain. In these cases, please give us your best estimate and annotate the entry with an asterisk (*) or state that the information is not available. For your assistance, a glossary of terms used in the questionnaire is attached at the back.

Please provide your completed questionnaire no later than January 23, 1998.

The return address is:

Joel C. Willemsen, Director
Information Resources Management
Accounting and Information Management
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441 G Street, NW, Room 4R26
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We are also asking that you provide the name and telephone number of a contact for your Department or agency who can answer any questions we may have about your questionnaire responses.

Department or Agency Contact

Name: _____

Title: _____

Organization: _____

Telephone: _____

Fax: _____

E-mail: _____

If you have any questions, please contact:

James Hamilton

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Department/Agency: _____

1. For your mission-critical systems, please provide the following status information:
 - a. #_____ mission-critical systems
 - b. #_____ mission-critical systems with external data exchanges (incoming or outgoing)
2. For your mission-critical systems with **external** data exchanges, please provide the number of
 - a. #_____ incoming data exchanges
 - b. #_____ outgoing data exchanges
 - c. #_____ total incoming and outgoing data exchanges

(An electronic data exchange is the transfer (sending or receiving) of a data set using electronic media. All revisions to data exchanges (for example, timing or format), require notifications and/or agreements with each exchange partner. For consistency of reporting, a data set transferred to 5 exchange partners would constitute 5 data exchanges.)

3. For the mission-critical systems with **external** electronic data exchanges (2.c.), please provide the number of **data exchanges** that you have
 - a. #_____ assessed for Year 2000 compliance
 - b. #_____ not assessed for Year 2000 compliance

For those assessed (3.a.):

- c. #_____ identified as compliant
- d. #_____ identified as non-compliant

For those identified as non-compliant (3.d.):

- e. #_____ developed a validation process for incoming external data
- f. #_____ determined a need for data bridges or filters
- g. #_____ developed contingency plans if no data are received from an external source
- h. #_____ developed contingency plans for invalid data

4. For external data exchanges where bridges or filters are needed (3.f.). Please provide the number that have been developed and tested:
 - a. #_____ developed
 - b. #_____ tested

(A bridge or filter can be developed for a specific data set transfer, regardless of the number of exchange partners. For consistency of reporting, bridges or filters are counted as one for each specific data set transfer, regardless of the number of data exchanges to which they apply.)

5. For mission-critical systems with **external** data exchanges (2.c.), please provide, for each type of entity listed, the number of such **external** entities involved, total external exchanges with these entities, external exchanges where the entity has been contacted, and external exchanges where agreements have been reached on the resolution of problems.

Please fill in the numbers in the spaces provided.

<u>Type of Entity</u>	Number of External Entities	----- External Exchanges -----		
		<u>Total</u> <u>Exchanges</u>	<u>Contacts</u> <u>Made</u>	<u>Agreements</u> <u>Reached</u>
Other federal agencies	a. _____	b. _____	c. _____	d. _____
State agencies	e. _____	f. _____	g. _____	h. _____
Local governments/authorities	i. _____	j. _____	k. _____	l. _____
U.S. private sector	m. _____	n. _____	o. _____	p. _____
Foreign government	q. _____	r. _____	s. _____	t. _____
Foreign private sector	u. _____	v. _____	w. _____	x. _____

6. a. Has your organization, or your component organizations, adopted a date format standard for data exchanges with external entities?

_____ Yes (continue with part b. - provide answers for each component organization, if applicable)
 _____ No (skip to part c.)

- b. If yes, has your organization adopted the 4-digit contiguous year format as specified by FIPS 4-1 and OMB Memorandum of April 8, 1997?

_____ Yes (skip to question 7)
 _____ No (continue with part c.)

- c. If your organization has not adopted a 4-digit contiguous year format for data exchanges, please describe the date format(s) your organization is using.

7. What are the number of your current and planned external data exchanges that use the following message formats? Please fill in the numbers in the spaces provided.

<u>Current</u>	<u>Additional Planned</u>	<u>Format</u>
a. # _____	i. # _____	ANSI ASC X12
b. # _____	j. # _____	Fedwire
c. # _____	k. # _____	CHIPS
d. # _____	l. # _____	HL7
e. # _____	m. # _____	UN/EDIFACT
f. # _____	n. # _____	EDI Medicare
g. # _____	o. # _____	flat file
h. # _____	p. # _____	other (describe) _____

8. What types of mission-related effects may result if external data exchange failures occur, such as the inability to transfer payments, process applications for program benefits or grants, monitor program operations, etc.?

Regulatory/Oversight Responsibilities

9. Do you, or your component organizations, have regulatory/oversight responsibilities over organizations that use electronic data exchanges to support their mission-critical systems?

_____ Yes (continue - provide answers for each component organization, if applicable)
 _____ No (go to question 14)

10. What types of organizations do you regulate/oversee?

11. For organizations over which you have regulatory/oversight responsibility, what approach have you used in working with the organizations to address Year 2000 problems so that they will be able to exchange data needed for mission-critical operations? (check all that apply)

- a. _____ Issued guidance that addresses Year 2000 problems (if yes, please provide a copy)
- b. _____ Issued guidance that addresses data exchange issues (if yes, please provide a copy)
- c. _____ Established working groups or forums to address data exchange issues
- d. _____ Established Year 2000 inspection/validation program (if yes, please provide a copy)
- e. _____ Used other approaches to addressing data exchange issues (if so, please describe)

12. Which of the following message formats are these organizations using or planning to use? (check all that apply)

<u>Current</u>	<u>Additional Planned</u>	<u>Format</u>
a. _____	i. _____	ANSI ASC X12
b. _____	j. _____	Fedwire
c. _____	k. _____	CHIPS
d. _____	l. _____	HL7
e. _____	m. _____	UN/EDIFACT
f. _____	n. _____	EDI Medicare
g. _____	o. _____	flat file
h. _____	p. _____	other (describe) _____

13. a. Are you, or your component organizations, monitoring the progress of those organizations over which you have regulatory/oversight responsibilities in addressing Year 2000 date conversion problems?

_____ Yes (continue - provide answers for each component organization, if applicable)
 _____ No (go to question 14)

b. If yes, please provide the actual or your best estimate of the percent of the organizations that fall into each of the following categories. (answers should total 100 percent)

- 1. % _____ Organization is not aware of the issues
- 2. % _____ Aware of the issues, may have informal inventory and estimates
- 3. % _____ Have a detailed inventory and cost estimates
- 4. % _____ Have a detailed plan, resources allocated, project underway
- 5. % _____ All mission-critical changes complete
- 6. % _____ All changes complete

c. Please indicate whether the above information is based on:

- 7. ____ actual data reported to you
- 8. ____ your best estimate

d. What is your estimate of the number and percent of these organizations that are at risk of not resolving date conversion problems before the Year 2000?

- 9. # _____ organizations at risk
- 10. % _____ organizations at risk

International Data Exchanges

14. Do you, or your component organizations, have regulatory/oversight responsibility for organizations that use electronic data exchanges with entities located outside of the United States?

_____ Yes (continue - provide answers for each component organization, if applicable)
_____ No (go to question 19)

15. What approach have you used in working with these organizations to address Year 2000 problems with international data exchanges?

16. a. For organizations performing international data exchanges, have you been monitoring the progress in addressing Year 2000 date conversions problems?

_____ Yes (continue - provide answers for each component organization, if applicable)
_____ No (go to question 21)

- b. Please provide the actual or your best estimate of the percent of the organizations that fall in each of the following categories. (answers should total 100 percent)

- (1.) _____ Organization is not fully aware of the issues
(2.) _____ Aware of the issues, may have informal inventory and estimates
(3.) _____ Have a detailed inventory and cost estimates
(4.) _____ Have a detailed plan, resources allocated, projects underway
(5.) _____ All mission-critical changes complete
(6.) _____ All changes complete

- c. Please indicate whether the above information above is based on:

- (7.) _____ data reported to you
(8.) _____ your best estimate

- d. What is your estimate of the percent of these organizations that are at risk of not resolving date conversion problems before the Year 2000?

(9.) % _____ organization at risk

17. Which formats are these organizations using or planning to use for international data exchanges? (check all that apply)

<u>Current</u>	<u>Additional Planned</u>	<u>Format</u>
a. _____	i. _____	ANSI ASC X12
b. _____	j. _____	Fedwire
c. _____	k. _____	CHIPS
d. _____	l. _____	HL7
e. _____	m. _____	UN/EDIFACT
f. _____	n. _____	EDI Medicare
g. _____	o. _____	flat file
h. _____	p. _____	other (describe) _____

18. What international forums are available for these organizations to use in addressing Year 2000 problems?

Overall

19. What barriers, if any, must be overcome in your efforts to resolve Year 2000 data exchange problems?

20. Please feel free to provide us with any other comment you feel will help us meet our study objectives.

Thank you.

GLOSSARY

ANSI ASC X12	American National Standards Institute Accredited Standards Committee X12. These are electronic data interchange standards governing transaction sets, segments, data elements, code sets, and interchange control structure. Standards provide the framework for how a specific EDI message will be formatted for transmission.
Bridge	In the context of the Year 2000 program, a software capable of distinguishing between 2-digit and 4-digit year formats. Bridges are used to convert the incoming data to an appropriate date format when the sending system is not Year 2000 compliant..
CHIPS	The Clearing House Interbank Payments System: a computerized network for transfer of international dollar payments. CHIPS link 115 depository institutions which have offices in New York City.
Contingency plan	In the context of the Year 2000 program, a plan for responding to the inability of a system to operate due to a failure to achieve Year 2000 compliancy. In general, a contingency plan describes the steps the enterprise would take--including the activation of manual or contract processes--to ensure the continuity of its core business processes in the event of a Year 2000-induced system failure.
EDI	Electronic Data Interchange. The electronic transfer of preformatted business documents, such as purchase orders and bills of lading, between trading partners.
Filter	A software that processes an input data stream into an output data stream in some well-defined way. In the context of the Year 2000 program, a software that filters out incoming year 2000 non-compliant data.
EDI Medicare	ANSI ASC X12 standards for the formatting and transmission of Medicare documents.
Fedwire	Federal Reserve Board's electronic funds and securities transfer service. Fedwire is used by Federal Reserve Banks and branches, the Department of the Treasury, other government agencies, and depository institutions.
FIPS 4-1	Federal Information Processing Standards Publication 4-1, Representation for Calendar Date and Ordinal Date for information Interchange.
Flat file	A single file containing either binary or text (plain ASCII) data with an implied structure, such as database. Flat text files are more portable among different operating systems and application programs than binary ones.
HL7	A standard for electronic data exchange in health care environments.

Mission-critical system	A system supporting a core business activity or process.
System	A system may be defined as a collection of software applications designed to support one or more distinct business processes.
UN/EDIFACT	United Nations-supported international electronic message standard for administration, commerce, and transport.
Validation	The process of evaluating a system, component, or an computer system output to determine whether it satisfies specified requirements.